

**AMENDMENTS TO THE CLAIMS**

*Please enter the following amendments:*

1 – 13. (Canceled)

14. (Currently Amended) An absolute difference processor comprising  
first and second stochastic pulse generators each comprising  
a ~~stochastic pulse generator as recited in claim 1~~ variable signal generator  
operative to generate a variable signal which varies randomly, and a comparator operative to  
output a binary signal of High or Low depending on which of one input signal and another input  
signal is larger or smaller than the other, wherein  
when the variable signal is inputted as said one input signal to the comparator  
from the variable signal generator, the comparator stochastically outputs pulses, the number of  
which corresponds to a magnitude of said another input signal; and  
an exclusive-OR circuit for outputting an exclusive-OR of an output of the first stochastic  
pulse generator and an output of the second stochastic pulse generator; wherein  
when said another input signal and the variable signal which are inputted to the first  
stochastic pulse generator are  $V_{S1}$  and  $V_{C1}$ , respectively, while the output of the first stochastic  
pulse generator is  $V_{O1}$ , and said another input signal and the variable signal which are inputted to  
the second stochastic pulse generator are  $V_{S2}$  and  $V_{C2}$ , respectively, while the output of the  
second stochastic pulse generator is  $V_{O2}$ , the variable signals  $V_{C1}$  and  $V_{C2}$  are the same variable  
signal:

thereby obtaining an absolute difference between the value of said another input signal  $V_{S1}$  and that of said another input signal  $V_{S2}$  in the form of a number of stochastic pulses comprising the exclusive-OR.

15. (Original) The absolute difference processor according to claim 14, wherein the stochastic pulses comprising the exclusive-OR are generated with a pulse generation probability which lowers with decreasing absolute difference between the value of said another input signal  $V_{S1}$  and that of said another input signal  $V_{S2}$ .

16. (Original) The absolute difference processor according to claim 14, wherein the variable signals  $V_{C1}$  and  $V_{C2}$  are generated to repeat the same progression.

17. (Original) A Manhattan distance processing apparatus comprising a plurality of absolute difference processors as recited in claim 14 which are connected in parallel with the single variable signal generator, wherein

signals corresponding to elements of respective of two vectors each having the elements, a number of which corresponds to the number of the absolute difference processors, are inputted as said another input signal  $V_{S1}$  and said another input signal  $V_{S2}$  to each of the absolute difference processors,

thereby obtaining a Manhattan distance between the two vectors in the form of number of stochastic pulses.

18. (Canceled).